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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,527	03/27/2001	Lawrence E. Foltzer	05043.P003	2827
7590	12/03/2004		EXAMINER PAYNE, DAVID C	
Michael J. Mallie BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP Seventh Floor 12400 Wilshire Boulevard Los Angeles, CA 90025-1026			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,527

Applicant(s)

FOLTZER, LAWRENCE E.

Examiner

David C. Payne

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7 and 9-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-7 and 9-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Arguments

1. Applicant's arguments with respect to claims 2-7 and 9-17 have been considered but are moot in view of the new ground(s) of rejection.
2. Regarding the Dowd reference. Applicant's assertion that Dowd is drawn to a process of manufacture of a VCSEL, does not account for the disclosure concerning the advantages of using VCSEL devices. Dowd disclosed the benefits of VCSELs as discussed below, which is sufficient motivation to use in the Cahill system. The Dowd discussion is repeated here:

"One of the main advantages of VCSEL devices is that the light output is produced in a direction perpendicular to the plane of the device. This is in contrast to previous edge emitting laser diodes which emit light in the plane of the device. Thus, VCSEL devices can easily be manufactured into arrays, since a number of devices can be produced on a single semiconductor area, without the need for the devices to be cut from one another. In addition, VCSELs are particularly suited for producing a circular beam of light. Such a circular beam requires little or no further optical processing before application to devices, such as CD ROM drives or communications devices."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 2, 3, 6, 9, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cahill US 5,581,387 (Cahill).

Re claim 2,

A method comprising:

establishing a plurality of transmission time slots (e.g., col./line: 2/6-11), each time slot corresponding to one of a plurality of optical transmitters (12 of Figure 1B) coupled to a head end (1 of Figure 1B, e.g., col./line: 4/14) via an interleaving device (6 of Figure 1B);

forming a bit interleaved optical data stream at the interleaving device based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters (e.g., col./line: 4/32-39), each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot (e.g., col./line: 4/50-55); and transmitting the bit interleaved optical data stream from the interleaving device to the head end over an optical network (e.g., col./line: 4/32-39).

Re claims 3 and 10,

The method/apparatus further comprising:

enabling each of the plurality of optical transmitters to transmit an optical bit during its corresponding time slot (e.g., col./line: 4/32-39).

Re claim 6,

A network comprising:

a head end (1 of Figure 1B, e.g., col./line: 4/14);

an interleaving device (6 of Figure 1B) coupled to the head end; and

a plurality of transmitters (e.g., col./line: 4/32-39) coupled to the head end via the interleaving device, each of the plurality of transmitters are enabled to transmit an optical bit during an established time slot corresponding to said each transmitter to the interleaving device to create a bit interleaved optical data stream (e.g., col./line: 4/32-39), wherein the bit interleaved optical data stream is transmitted from the interleaving device to the head end (e.g., col./line: 4/32-39), and wherein each transmitter transmits only one optical bit to the interleaving device within each respective time slot (e.g., col./line: 4/50-55).

Re claim 9,

An apparatus comprising:

means for establishing a plurality of transmission time slots (e.g., col./line: 2/6-11), each time slot corresponding to one of a plurality of optical transmitters (12 of Figure 1B) coupled to a head end via an interleaving device (6 of Figure 1B);

means for forming a bit interleaved optical stream at the interleaving device based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters (e.g., col./line: 4/32-39), each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot (e.g., col./line: 4/50-55); and

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means for transmitting a bit interleaved optical data stream from the interleaving device to the head end over an optical network (4 of Figure 1B).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 11, 14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahill US 5,581,387 (Cahill).

Regarding claims 4 and 11, Cahill does not disclose

adding an additional optical transmitter to the optical network.

It would have been obvious to one of ordinary skill in the art at the time of invention to add an additional transmitter for the benefit of transmitting data from another outlying termination point in the network serving a different customer. Adding transmitters such as in accommodating network growth is extremely well known in the art. Furthermore, increasing the number of duplicate parts is not considered patentable over the prior art.

Re claims 14 and 16,

Cahill does not disclose wherein each of the plurality of optical transmitters is assigned a 10 nanosecond time slot, and wherein each bit of the bit interleaved optical data stream

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is transmitted via a 2.5 ns pulse over the optical network. Cahill operated his network with 48.8 ns bit periods. However, it would have been obvious to one of ordinary skill in the art at the time of invention to choose a pulse duration and time slot width to meet the timing requirements of a typical high-speed optical network. In this case, a 10ns time slot operates within the constraints of a 100 Mbps network which is well known to one skilled in the art. Lacking any criticality, it is not patentable to alter the range of operating parameters over the prior art.

7. Claims 5, 7, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahill US 5,581,387 (Cahill) in view of Dowd et al. US 6639931 B1 (Dowd).

Cahill does not disclose wherein at least one of the plurality of optical transmitters is a vertical cavity surface emitting laser.

Dowd disclosed (VCSELs) vertical cavity surface emitting lasers.

It would have been obvious to one of ordinary skill in the art at the time of invention to use VCSELs in the Cahill system for the benefit that VCSELs are particularly suited for producing a circular beam of light. Such a circular beam requires little or no further optical processing before application to devices as discussed by Dowd (see col./line: 1/30-40).

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cahill US 5,581,387 (Cahill) in view of Phillips et al. US 2002/0080444 A1 (Phillips).

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Re claim 13,

Cahill disclosed

establishing a plurality of transmission time slots (e.g., col./line: 2/6-11), each time slot corresponding to one of a plurality of optical transmitters (12 of Figure 1B) coupled to a head end (1 of Figure 1B, e.g., col./line: 4/14) via an interleaving device (6 of Figure 1B);

forming a bit interleaved optical data stream at the interleaving device based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters (e.g., col./line: 4/32-39), each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot (e.g., col./line: 4/50-55); and transmitting the bit interleaved optical data stream from the interleaving device to the head end over an optical network (e.g., col./line: 4/32-39).

Cahill does not disclose

A computer readable medium, which, when executed by a processing system, enables the system to perform. Phillips disclosed a computer readable medium that executes code to marshal upstream transmission communications to a head end in a communication network (e.g., page 2, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to use the computer readable medium in Phillips to manage the communications in the Cahill invention so that all the transmitting stations perform the transmission of data precisely and repeatedly. Computer technology is extremely well known in the art as useful for controlling transmission equipment to perform repeated functions with precision.

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9. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cahill US 5,581,387 (Cahill) in view of Bloom et al. US 6,594,043 B1 (Bloom).

Re claims 15 and 17,

Cahill disclosed the aforementioned invention but does not disclose further comprising increasing transmitting power for each bit of the bit interleaved optical data stream to allow a peak of the transmitting power exceeding a predetermined threshold that would cause human eye damage, while maintaining an average transmitting power of the bit interleaved optical data stream below the predetermined threshold that would cause a human eye damage. Bloom disclosed transmitting a pulsed laser diode at "a relatively high peak power, but a very low average power", see col./line: 8/60-67 and 9/1-2). It would have been obvious to one of ordinary skill in the art at the time of invention to transmit power accordingly in the Cahill invention so that laser's high transmission power would drive the signal further. Where high transmission power above eye damage thresholds would be well known in the art to travel further distances while still maintaining a low duty cycle which limits the amount of time the pulse is "on" and thereby reducing the average power that could cause damage to the eye. Regarding claim 17, Bloom using a long duty cycle (col./line: 8/67) that would transmit a low average value of power transmission.

Conclusion

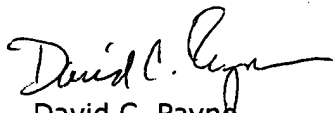
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7a-4p.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp



David C. Payne
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